

Notice of Allowability**Application No.**

10/563,436

Applicant(s)

AMANO ET AL.

Examiner

Blake Kumabe

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to response filed 5/24/2010 and interview on 7/14/2010.
2. ☒ The allowed claim(s) is/are 16, 18, 22, 25, 28, 31-34 now renumbered as 1-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 7/14/2010.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

/Li B. Zhen/
Primary Examiner, Art Unit 2194

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/24/2010 has been entered.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. Authorization for this examiner's amendment was given in a telephone interview with Stephen Kopchik on 07/14/2010.

4. This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-15. (Cancelled)

Claim 16. (Currently Amended) A task scheduling apparatus for parallel processing a plurality of tasks, each of the tasks being assigned a priority, and the plurality of tasks including one or more tasks each having one or more signal handlers, the one or more signal handlers each being assigned a priority, the task scheduling apparatus comprising:

a processor;

a signal-handler registering section for registering the one or more signal handlers of the one or more tasks, signals corresponding to the one or more signal handlers, and the priorities assigned to the one or more signal handlers while relating them to each other;

a signal generating section for generating a signal for designating a signal handler;

a priority table for recording the plurality of tasks and the priorities thereof while relating them to each other, wherein the plurality of tasks includes an ordinary task and a signal-handler processing task for executing at least one signal handler, the signal-handler processing task includes a queue in which at least one signal handler to be executed is registered, the signal-handler processing task includes a variable priority to be changed depending on a priority of at least one signal handler registered in the queue, and the signal-handler processing task causes to be executed a signal handler having a highest priority out of the at least one signal handler registered in the queue upon the signal-handler processing task being called and executed; and

a selection executing section including

a signal notifying section for specifying the signal handler designated by the generated signal as an object signal handler and assigning a priority to the object signal handler by referring to contents registered by the signal-handler registering section, and registering the object signal handler in the queue,

a priority changing section for specifying the signal handler having the highest priority out of the at least one signal handler registered in the queue by referring to the contents registered by the signal-handler registering section when at the signal handler registered in the queue has been changed such that content in the queue has been changed, and changing the variable priority of the signal-handler processing task recorded in the priority table to the priority of the specified highest priority signal handler,

a selecting section for selecting a task from among the plurality of tasks corresponding to a highest priority of the plurality of priorities recorded in the priority table as an object to be executed by referring to the priority table, and

an executing section for executing the task selected by the selecting section.

Claim 17. (Cancelled)

Claim 18. (Previously Presented) A task scheduling apparatus according to claim 16, wherein the signal notifying section deletes, from the priority table, recorded

content relating to the task whose execution has been completed when the executing section completes the execution of the task.

Claims 19 - 21. (Cancelled)

Claim 22. (Previously Presented) A task scheduling apparatus according to claim 16, wherein the signal-handler processing task deletes, from the queue, registration of the highest priority signal handler whose execution has been completed when the execution of the highest priority signal handler is completed.

Claim 23. (Cancelled)

Claim 24. (Cancelled)

Claim 25. (Previously Presented) A task scheduling apparatus according to claim 16, further comprising a task registering section for registering the priorities of the one or more tasks in the priority table upon a registration instruction from the one or more tasks.

Claim 26. (Cancelled)

Claim 27. (Cancelled)

Claim 28. (Original) A task scheduling apparatus according to claim 25, wherein the task registering section changes the priorities of the one or more tasks registered in the priority table upon a change instruction from the one or more tasks.

Claim 29. (Cancelled)

Claim 30. (Cancelled)

Claim 31. (Previously Presented) A task scheduling apparatus according to claim 28, further comprising:

a buffer for temporarily storing data outputted from a specific task, the specific task being one of the one or more tasks, and

a buffer administering section for notifying the signal generating section when an amount of the data stored in the buffer falls below a predetermined reference amount,

wherein the specific task includes a specific signal handler for causing the task registering section to change the priority of the specific task registered in the priority table to a higher value by giving an instruction to the task registering section, and the signal generating section generates a signal corresponding to the specific signal handler upon receiving the notification from the buffer administering section.

Claim 32. (Previously Presented) A task scheduling apparatus according to claim 16, further comprising a signal-handler table in which the signal-handler registering section registers the one or more signal handlers of the one or more tasks, the signals corresponding to the one or more signal handlers, and the priorities assigned to the one or more signal handlers while relating them to each other, wherein the selection executing section refers to the signal-handler table as the contents registered by the signal-handler registering section.

Claim 33. (Currently Amended) A task scheduling method for parallel processing a plurality of tasks using a processor, each of the tasks being assigned a priority, and the plurality of tasks including one or more tasks each having one or more signal handlers, the one or more signal handlers each being assigned a priority, the task scheduling method comprising:

a signal-handler registering step of registering the one or more signal handlers of the one or more tasks, signals corresponding to the one or more signal handlers, and the priorities assigned to the one or more signal handlers while relating them to each other;

a signal generating step of generating a signal for designating a signal handler;

a priority table recording step of recording, in a priority table, the plurality of tasks and the priorities thereof while relating them to each other, wherein the plurality of tasks includes an ordinary task and a signal-handler processing task for executing at least one signal handler, the signal-handler processing task includes a queue in which

at least one signal handler to be executed is registered, the signal-handler processing task includes a variable priority to be changed depending on a priority of at least one signal handler registered in the queue, and the signal-handler processing task causes to be executed a signal handler having a highest priority out of the at least one signal handler registered in the queue upon the signal-handler processing task being called and executed; and

a selection executing step including:

a signal notifying step of specifying the signal handler designated by the generated signal as an object signal handler and assigning a priority to the object signal handler by referring to contents registered by the signal-handler registering step, and registering the object signal handler in the queue,

a priority changing step of specifying the signal handler having the highest priority out of the at least one signal handler registered in the queue by referring to the contents registered by the signal-handler registering step when the signal handler registered in the queue has been changed such that content in the queue has been changed, and changing the variable priority of the signal-handler processing task recorded in the priority table to the priority of the specified highest priority signal handler,

a selecting step of selecting the task from among the plurality of tasks corresponding to a highest priority of the plurality of priorities recorded in the priority table as an object to be executed by referring to the priority table; and

an executing step of executing the task selected by the selecting step.

Claim 34. (Currently Amended) A non-transitory computer-readable storage medium storing a task scheduling program for causing a computer to perform a task scheduling method for parallel processing a plurality of tasks, each plurality of task being assigned a priority, and the plurality of tasks including one or more tasks each having one or more signal handlers, the one or more signal handlers each being assigned a priority, the task scheduling method comprising:[[:]]

a signal-handler registering step of registering the one or more signal handlers of the one or more tasks, signals corresponding to the one or more signal handlers, and the priorities assigned to the one or more signal handlers while relating them to each other;

a signal generating step of generating a signal for designating a signal handler;

a priority table recording step of recording, in a priority table, the plurality of tasks and the priorities thereof while relating them to each other, wherein the plurality of tasks includes an ordinary task and a signal-handler processing task for executing at least one signal handler, the signal-handler processing task includes a queue in which at least one signal handler to be executed is registered, the signal-handler processing task includes a variable priority to be changed depending on a priority of at least one signal handler registered in the queue, and the signal-handler processing task causes to be executed a signal handler having a highest priority out of the at least one signal handler registered in the queue upon the signal-handler processing task being called and executed; and

a selection executing step including

a signal notifying step of specifying the signal handler designated by the generated signal as an object signal handler and assigning a priority to the object signal handler by referring to contents registered by the signal-handler registering step, and registering the object signal handler in the queue,

a priority changing step of specifying the signal handler having the highest priority out of the at least one signal handler registered in the queue by referring to the contents registered by the signal-handler registering step when the signal handler registered in the queue has been changed such that content in the queue has been changed, and changing the variable priority of the signal-handler processing task recorded in the priority table to the priority of the specified highest priority signal handler,

a selecting step of selecting a task from among the plurality of tasks corresponding to a highest priority of the plurality of priorities recorded in the priority table as an object to be executed by referring to the priority table, and

an executing step executing the task selected by the selecting step.

Claim 35. (Cancelled)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blake Kumabe whose telephone number is 571-270-

5593. The examiner can normally be reached on 7:30am - 5:00pm EST Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. K./
Examiner, Art Unit 2195

/Li B. Zhen/
Primary Examiner, Art Unit 2194